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Policy

The U.S. Navy Medical News Letter, is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Treatment of Parkinson's Disease

Parkinson's disease is one of the most common of the chronic diseases which may afflict mankind. The general practitioner sees the patient from the beginning of the illness when the greatest good can be achieved. This is the time when intensive treatment can protect a patient against later disabilities, postural abnormalities, and deformities. The physician, however, cannot do the entire job by himself. He needs the wholehearted cooperation of the patient and family in order that his plan of treatment may produce satisfactory results. The physiotherapist has to do his share in keeping the patient's muscles free and in recommending proper exercises that will insure an erect posture, good balance, and a steady gait. The chemist and pharmacologist must supply the doctor with tools that will control the many symptoms of the illness. The psychiatrist has to provide help for severe emotional problems; the neurosurgeon must help those symptoms that are beyond the reach of medicine.

Not all of the factors mentioned are required for every patient nor is it necessary that all elements of the team work under a single roof, but the sum total of the contributions is needed for ultimate success in the prevention and control of this disease.

Much can be done with available resources because: (1) during the past decade, a better understanding of the management of the disease has developed; (2) better drugs may be obtained to combat the symptoms; (3) unlike other diseases, the diagnosis is not a problem; and (4) the patients do not expect a cure and are appreciative of any help given them. They should be told that:

1. Parkinson's disease is a comparatively "friendly" illness as it does not shorten life.

2. It is not inherited or contagious.
3. It does not cause paralysis or numbness.
4. Vision, hearing, and the mental faculties are not affected.
5. There is no pain in this illness unless treatment is neglected and fibrosis and contracture of muscles develop as a result of disuse atrophy.
6. There are stationary periods of 5, 10, or more years when there is little, if any, progression in the symptoms.
7. The patient with Parkinson's disease does not have to be rushed to a hospital for blood transfusions or other such emergency measures.
8. Many diseases, such as leukemia, cancer, cerebral palsy, multiple sclerosis, and brain tumor, are more serious conditions.
9. New remedies for Parkinson's disease are being created every day and the best drug to treat it may soon be developed.
10. For reasons as yet unknown, Parkinson's disease tends to protect the patient from cardiac disease, cancer, tuberculosis, hypertension, and many other illnesses.

The patient should be told that the illness affects the basal ganglion, a small center at the base of the brain, not the brain itself. He also should know that the chief symptoms of the illness are rigidity and tremor and that with modern medication, physiotherapy, and regular exercise, he can stay a safe distance ahead of the disease. He should be made to realize that intensive treatment can give him many years of productive and comfortable living, but that if he neglects treatment he could become disabled in a comparatively short time. The importance of work, activity, and exercise should be stressed.

The physician's attitude should be encouraging at all times, reflecting genuine concern for the patient's ailment and welfare. Physician interest is the "cement" that binds the entire treatment together. Without it, the patient loses confidence in his medication and physiotherapy; in a year or two, he may regress beyond repair. The patient, if possible should be seen at regular intervals because there are many matters which require the doctor's attention. The patient's weight and blood pressure should be measured and a blood study made when indicated. The patient's gait, speech, posture, rigidity, and tremor should be checked and the necessary adjustments made in exercise and physiotherapy. The medication should be appraised because the effect of drugs tends to wear off and new drugs must be substituted or added. Side reactions and new complaints and problems require attention as they arise. The patient may wish to know whether it is safe to undergo dental surgery, repair of a hernia, or the removal of hemorrhoids, or whether space shoes would help the calluses and bunions on his feet. In addition, inquiry should be made, and advice given, on matters of rest, work, diet, travel, vacations, hobbies, sleep, bowel and bladder functions, family and personal problems, et cetera.

The current standard drugs for the treatment of Parkinson's disease are listed in a table. In addition, there are accessory or supplementary remedies that can be beneficially employed by some patients.

It is important to have many drugs available because patients tend to tire of any remedy during the long siege of the illness and some patients are forever looking for a new treatment or "cure." It is also true that drugs tend to lose their effectiveness with the passing of time and other effective agents must be available to replace them. In some cases, too, there are so many symptoms to treat that three, four, or more drugs are required at one time. This is especially so because certain drugs, such as Benadryl, are good for tremor, but have minimal or no action against rigidity or akinesia. Therefore, it is necessary that physicians have a large storehouse of good remedies in order to cope successfully with the changing tastes, needs, and tolerances of the patients.

If maximum benefits are to be derived, physiotherapy must be employed regularly through the years by every patient with rigidity. The patient should be prepared not to expect great changes from one or several such treatments; he should realize that his entire future well-being demands that he submit to these treatments regularly, especially in the presence of contractures, postural abnormalities, impaired gait, and poor balance.

Physiotherapy in parkinsonism should be confined to the modalities that provide health to the muscles rather than momentary comfort to the patient. It should consist of massage, passive stretching of muscles, and active exercises in the gymnasium or treatment with special equipment and calisthenics at home. Diathermy, electrotherapy, ultraviolet radiation, and sun lamps are of little value in Parkinson's disease.

Patients with Parkinson's disease may be classified in three groups: Group 1 consists of those with moderate to severe rigidity. In these patients, physiotherapy is mandatory in order to: (1) prevent and lessen contractures and deformities; (2) prevent drooping of the head, flexion of the trunk, scoliosis, lateral list of the body, torticollis, and kyphosis; (3) prevent equinus posture and the propulsion and festination that follow; and (4) teach the patient proper balance so that he can prevent falls and injuries which lead to chair or bed confinement and ultimate invalidism.

Group 2 includes patients with mild rigidity. In this condition, physiotherapy is needed to: (1) maintain the patient's good state of health, and (2) prevent contractures and disabilities in the future.

In Group 3 are patients with tremor, but with little or no rigidity. physiotherapy is not required for these patients. General activity and exercise by the patient suffice.

The expense of research and the care of chronic patients have grown beyond the means of individuals, families, or educational institutions. This is evidenced by the establishment of many foundations for the support of research in poliomyelitis, multiple sclerosis, muscular dystrophy, myasthenia gravis, epilepsy, cancer, heart disease, et cetera. No foundation

has yet been established for people who have Parkinson's disease. These are hard-working, conscientious, self-sacrificing, and intelligent people who deserve every assistance from the community in their hour of need.

The plan and need for teamwork to combat successfully the growing problem of Parkinson's disease are presented in this article. While ideal conditions are not available, much can be accomplished for the patient with present facilities and the added understanding and better remedies of the past decade. Far more will be possible when a Parkinson foundation comes into existence to promote research and to help the doctor with placement and rehabilitation facilities for advanced and disabled patients. (Doshay, L. J., Teamwork in Treatment of Parkinson's Disease: Postgrad. Med., 23: 7-16, January 1958)

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Hodgkin's Disease Treated by Irradiation

In 1950, a preliminary report was published from the Department of Radiotherapy, Toronto General Hospital, on the follow-up of 138 patients with Hodgkin's disease who had been treated radiologically. Most of these patients are included in the present report.

Hodgkin's disease in all its vagaries of site and form presents a puzzling picture. Its misleading similarity to the other malignant lymphomas and to certain nonlymphomatous diseases increases the difficulty of diagnosis. Boeck's sarcoid, tuberculosis, and even carcinoma of the thyroid have all been wrongly diagnosed as Hodgkin's disease.

The custom has been to regard the prognosis of this disease as a tale of unrelieved gloom. This article seeks to dispel some of that gloom and to demonstrate the value of early diagnosis, energetic initial therapy, and close follow-up of patients suffering from Hodgkin's disease.

A series of 291 cases of Hodgkin's disease treated in the Toronto General Hospital from 1928 to 1954 was studied with relation to 5, 10, 15, and 20-year gross survival rates, initial sites of disease, and factors determining the prognosis. The value of supplemental prophylactic irradiation has been assessed as well as the possible prolongation of life by chemotherapeutic agents. Comments were made on interesting complications during the course of the disease, such as pregnancy, associated diseases, and metabolic disturbances.

The distribution by initial site is recorded in a table. It is interesting to note that approximately one-half of the entire group gave a history of involvement of the cervical lymph nodes prior to that of any other site. Of the total number, only 9%, or 26 cases, demonstrated initial involvement of the more rare sites.

In the present survey, there are more 15 and 20-year survivals for study than were included in the previous report. The 15-year survival rate

of 25% is significant because of the moderately large number of cases (64) included in that estimate. The 20-year survival rate is not as significant statistically, but is very encouraging. One of the six 20-year survivors has since died of extraneous disease. Another deserves special attention as she has survived 25 years without recurrence; she was pregnant on admission for treatment and had involvement of both sides of the neck. The pregnancy was allowed to terminate at the normal time before treatment was initiated.

At the other end of the scale, it is noted that one-third of the 291 cases failed to survive 1 year. The percentage which failed to survive or the 34 "percentage loss" during the first year after admission is almost as great as the "percentage loss" during the entire 9 years following, as there is only a difference of 37% between the 1-year survival rate and the 10-year survival rate. The "survival drop" during those 9 years is gradual. After the 10-year mark has been reached, the "loss" from year to year is hardly significant. Thus, if a patient survives 10 years without recurrence there is very little risk of a recurrence during the following 20 years. Only 8 of the 40 cases surviving 10 years have died since and these had evidence of active disease prior to the 10-year mark. Craver reports 22 living patients showing survival from 10 to 17 years in a series of 250 proved cases treated at Memorial Hospital.

The following conclusions and estimations have been drawn which in part have been supported by other authors.

1. The cervical lymph nodes are by far the most frequently noted initial sites of the disease.
2. The stage of the disease still ranks first as an important factor in evaluating the prognosis.
3. A 10-year survival without recurrence after the initial control is necessary before one can be reasonably confident of a cure, as shown by the year-to-year drop in survival rates.
4. A significant 10-year survival by stage has now been established: Stage I, 58%, Stage II, 35%, and Stage III, 2%, there being comparable numbers of cases in each group.
5. A history of symptoms of generalized disease is the second most significant factor determining a poor prognosis, the 10-year survival with this history being 6% as opposed to 60% in the absence of such symptoms.
6. The incidence of Hodgkin's disease rises with advancing age to a peak at 30 years of age after which it recedes, but the 20 to 30-year decade has the best survival rate.
7. The female sex, while in the minority in incidence, has at least a 10% better prognosis.

8. The duration of the disease reflects the chronicity of the disease according to the stage. In general, the early cases of long duration demonstrated longer survivals without recurrence.

9. A plea is made for deliberation and, when necessary, a period of observation before deciding on the plan of treatment. The survival rates and the incidence of recurrences reveal that there is at least a 35% error in clinical staging. This fact must be borne in mind when initial treatment is planned.

10. Prophylactic irradiation of at least all proximal lymph node regions is estimated to have increased the survival rates at least 20%.

11. Chemotherapeutic agents have been useful in prolonging the life of selected cases. A possible increase in the survival rates up to 5 years is demonstrated.

12. The complication of pregnancy, particularly following the initial control of the disease, does not appear to alter the prognosis.

(Peters, V.M., Middlemiss, K.C.H., A Study of Hodgkin's Disease Treated by Irradiation: Am. J. Roentgenol., 79: 114-121, January 1958)

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Hamartoma of the Lung

Hamartoma of the lung is infrequently suspected on routine x-ray film examination or found at autopsy. Its appearance on the roentgen film frequently simulates that of malignant neoplasm, although the tumor itself rarely, if ever, becomes malignant. The author has reviewed the hamartomas of the lung which were discovered both in surgical pathologic material and at autopsy in order to determine the incidence of the tumor, characteristic diagnostic features, and the association of any factor that might throw light on etiology and pathogenesis.

The term hamartoma is defined as a tumor-like malformation in which can be found an abnormal mixture of normal developmental components of the organ in which they occur. The mixture may be abnormal with regard to quantity, arrangement, degree of development, or all of these factors.

In the 200 reported cases, the tumor was endobronchial in 33, and in the lung parenchyma in the remainder. It occurs more frequently in the lower lobes, is usually found immediately beneath the pleura, but may lie deep in the parenchyma near the larger bronchi and blood vessels.

The tumor may reach 20 cm., but most of those reported in recent years have ranged from 1 to 4 cm. in diameter. Hamartomas are usually spherical or ovoid, are loosely encapsulated and can be easily shelled out of the adjacent parenchyma, and have a firm rough bosselated surface.

They cut with the consistency of cartilage and may contain small areas of calcification. The cut surface is usually gray-white, although tumors having an abundance of fat may be yellow.

Most hamartomas are unattended by symptoms and are discovered in routine x-ray films of the chest, appearing as a dense shadow. Generally, the roentgen features are not diagnostic.

The hamartomas in this series usually originated in the wall of the small bronchi or bronchioles in the periphery of the lung and gradually expanded and compressed the adjacent lung parenchyma. Their appearance suggested growth both into the bronchial lumen as well as into the adjacent lung. In two cases in which the tumors cast x-ray shadows, x-ray films 6 years previously were negative. In both, the tumor was later removed because it showed evidence of growth.

Four possible mechanisms of origin of hamartomas have been proposed: (1) congenital malformation, (2) hyperplasia of normal structures, (3) neoplasia, and (4) response to inflammation. Most writers feel that these tumors represent a misplaced bronchial anlage.

The tumors seldom give rise to symptoms and are usually discovered during routine roentgen examination of the chest. They frequently simulate chronic granuloma or malignant neoplasm on the roentgen film, although they rarely, if ever, become malignant. The possibility is suggested that chronic inflammation may be a factor in some cases in formation of pulmonary hamartoma. (Hodges, F. V., Hamartoma of the Lung: Dis. Chest, XXXIII: 43-50, January 1958)

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Electrical Burns of the Upper Extremities

In spite of the many safeguards constantly being developed to minimize the hazards of accidents caused by electrical burns, there is a general lack of knowledge regarding the intricacies and dangers involved in contact with high or low-tension electric current. The incidence of electrical burns is increasing with the growing use of electricity.

The author discusses the frequent seriousness of burns and shock from electric current; the type and amount of current; tension, resistance, and individual susceptibility; the characteristics, appearances, and degrees of electrical-burn lesions; and treatment, both initial and definitive, with special reference to the upper extremities.

The generation of heat resulting from electric current traveling through the human body is similar to that of heat resulting from current passing through a conductor. This heat causes destruction of the cells, stimulation of strong muscle contracture, inhibition of functions of vital organs in the path of the current, full-thickness skin loss, volatilization necrosis, and

in some cases, actual elimination of bone. It is well known that the melting point of iron is 1510 to 1570° C. and that of calcium, 700 to 900° C. Electric arc welding temperatures of 3250 to 3300° C. are not uncommon. Baldridge has pointed out that in electric arc burns the tissues are heated by a current of 2500 to 3000° C. and that tissues including bone, are melted and volatilized.

An electrical injury will occur when some part of the body is interposed between two electrodes to complete an electric circuit or arc. For example, a live wire may be touched with impunity so long as such contact does not complete a circuit and result in a flow of electric current through the tissues. When contact, direct or indirect, results in such a flow from one electrode to another or from an electrode to the earth, the symptoms may be immediate, secondary, or delayed. The harmful effects and the extent of the damage upon an organism depend upon several factors: type and amount of current (voltage and amperage), resistance (ohms), path of the current, duration of contact, and individual susceptibility.

Electric current of 1000 volts or less is considered low tension; above 1000 volts, high tension. Anything above 65 volts or thereabouts may be considered dangerous, especially if the person is well grounded. In fact, Jellinek found currents as low as 25 volts dangerous when the body was wet and well grounded. Williams stated that 110 volts may prove fatal if contact is made on moist skin and current passes through the heart in sufficient quantity to throw the ventricles into fibrillation.

Shock received in electrical accidents depends more upon the conditions of contact than upon the nature of the current with which it is made. It has been demonstrated that brief contact with a 1000-volt high-tension current with a dry hand or finger may be less dangerous than 110 volts grasped with a wet hand with the body wet and well grounded.

Alternating current, however, is about three times more dangerous than direct current of the same voltage and amperage. The number of cycles is important. When the cycles range from about 30 to 150, there is more danger, because as the number of cycles increases, the danger diminishes. This is explained by the fact that muscles and nerves are insensitive to very high frequencies.

High-tension wires usually carry alternating current of high voltage and amperage. Frequently, it is necessary to forcibly detach the victim from contact with such a wire. If this is necessary, the rescuer must first take precautions for his own safety by using a nonconductor, such as a piece of wood or rubber to knock the wire from the victim's grasp or contact.

Danger in electrical accidents increases in direct proportion to the duration of the passage of the current, regardless of the type and amount, the resistance, or nature of the contact. Strong tetanic contractions of the entire musculature are produced as the electric current traverses the body.

Those who have observed electrical accidents have seen victims in a state of extreme opisthotonos, with muscles torn, joints dislocated, and bones fractured. These strong muscle contractions may fling the body away from the contact and break the current or the individual may be fixed to the conductor until the current is broken. Dale likened this to the case of a child gripping a cold electric element while a playmate switches on the current. This, he stated, is a very common accident among children and usually results in full-thickness, closely circumscribed burns on fingers and palms. If the accident occurs with alternating current, the hand or hands cannot be withdrawn because of a tetanizing effect.

Williams, in a study of electrically burned hands in children, found a high incidence of contracture deformities after full-thickness burns. Frommolt described the fixation of a hand through which a current had passed as claw-like for hours after the accident. This demonstrates the tetanic contractions which sometimes outlast the passage of current. The muscles in such patients were firm, dry, reddish, and friable.

The usual symptoms of electrical shock are headache, vertigo, nervousness, insomnia, defective memory, psychoneurotic syndromes, states of mental aberration with delirium and sometimes a complete personality change. These frequently develop some months after an electrical accident.

Drinker stated that the victim of electrical shock may be found in one of several conditions: (1) Respiration may have ceased, but the heart and circulation remain normal (due to tonic spasm of the respiratory muscles); (2) Respiration and circulation may have ceased simultaneously after the ventricles of the heart have gone into fibrillation; and (3) Respiration may be present, but the heart stopped as in ventricular fibrillation. Jaffe stated that currents of low-tension kill by producing ventricular fibrillation; high-tension currents kill by causing a paralysis of the respiratory center, and medium tension (400 to 600 volts) has perhaps an injurious effect upon both circulatory and respiratory centers.

Although some difference of opinion exists as to whether death in electrical shock is caused by cardiac damage or respiratory paralysis from action on the medulla, there is a growing belief that most electrical fatalities are caused by direct action of the electric current on the heart, causing ventricular fibrillation.

Electrical burns may be divided into two types:

Contact Burns. These vary from pinpoint size to large surface areas. Wounds from electric sparking and contact with high-tension current differ from those caused by electric heat and chemical burns. Their principal characteristics are absence of pain, maintenance of their original appearance for days or weeks, and a marked tendency to heal after a period of latency of a few days or even weeks. In these burns, portions of the soft tissues as well as bone in the region of the wound may separate spontaneously without causing any noticeable discomfort or suppuration.

Arc Burns. In this type of burn, extreme temperatures of 2500 to 3000° C. are developed. This is the most serious type; in these burns, there is frequently a final slough in excess of the original burn. Because of the extreme heat generated, there are often accompanying thermal burns of varying degrees.

The most important emergency medical treatment in electrical injuries consists of artificial respiration, cardiac massage—if applied within five minutes of the accident—and cardiac stimulant. Baldrige has also suggested using intra-arterial or intra-cardiac injections of potassium and calcium salts. In some instances, prophylactic tetanus and gas anti-toxin may be indicated.

In the treatment of injuries, the literature still reveals some divergence of opinion regarding the timing for definitive care of electrical burns. The author believes that a conservative therapeutic approach is important. As pointed out, the examinations do not permit an accurate estimate of the extent of the injury even after days or weeks, because damage to soft tissues and bone is progressive. Therefore, an injury which appears relatively simple may ultimately become catastrophic. Furthermore, the difference in the characteristics, pathogenesis, and pathology of electrical burns compared with thermal injuries, makes a period of delay possible before attempting debridement and definitive care of electrical burn lesions without danger to the patient. (Lewis, G. K., *Electrical Burns of the Upper Extremities: J. Bone & Joint Surg.*, 40-A, 27-37, January 1958)

* * * * *

Estrogen Replacement Therapy

Coronary heart disease is rarely encountered in premenopausal women. However, postmenopausally, a sharp rise in the incidence of this disease has been reported in the sixth decade of life; by the seventh decade the incidence approaches that of men. A fundamental biochemical alteration associated with the menopause is the substantial decrease of ovarian estrogen production as measured by urinary estrogen levels. Alterations of the serum lipids coincident with this low estrogen production have been reported. These include increases of serum cholesterol, of cholesterol-phospholipid ratio, and of B-/a-lipoprotein-cholesterol ratio. The frequent association of these abnormalities with coronary atherosclerosis has been reported by Barr. Estrogens revert the abnormal serum lipids toward normal levels in both animal and human subjects. Furthermore, autopsy studies suggest a decreased incidence and severity of atherosclerosis in patients receiving estrogens during life, and in hyperestrogenic states.

Despite the evidence cited, no studies on the effects of estrogen administration on serum lipids in women have been published since those of Eilert

which involved short-term trials in 12 women with coronary heart disease. Reports of estrogen administration to male patients have all stressed the undesirable "feminizing" side effects. In women, on the other hand, these feminizing effects are desirable. Consequently, a study of the effects of long-term estrogen therapy on the serum lipids in postmenopausal women seemed warranted. This is an initial report of (1) serum lipid patterns of normal young women and postmenopausal women, (2) the results of estrogen therapy in women with coronary heart disease, and (3) estrogen prophylaxis as a possible means to control the elevated serum lipids in clinically normal postmenopausal women.

Serum lipid studies and clinical evaluations were carried out on 22 normal young women in the third decade of life, and on 113 normal postmenopausal women between the ages of 45 and 65.

In the therapeutic approach to coronary atherosclerosis in women, 35 patients with angina pectoris or myocardial infarction were selected for study. Other studies have shown in men with coronary atherosclerosis that 10 mg. of oral mixed conjugated estrogens (Premarin) daily have a favorable effect on serum lipids, and no deleterious effects on adrenal cortical or thyroid functions. For this reason, the women in this group received either 5 or 10 mg. of Premarin after control studies. Because this dosage would often cause uterine bleeding, only women who previously had had a hysterectomy for gynecologic reasons were chosen. Clinical and laboratory evaluations were performed at one, three, six, and twelve months of therapy.

A group of 58 postmenopausal women without clinical evidence of atherosclerosis were selected for the third portion of this study, the purpose of which was the determination of the optimal dose of estrogen to revert the blood lipids to levels characteristic of normal young women who rarely have atherosclerosis. To do this, the effect of stepwise increases of estrogen dosage every three months on the serum lipids was observed.

A table shows that there are significant differences in the serum lipid patterns between young women and postmenopausal women. In the latter group, the elevation of serum total cholesterol is greater than that of the serum phospholipids resulting in an increased cholesterol-phospholipid ratio. The ratio of cholesterol in the B-lipoprotein fraction to that in the a-fraction is also significantly increased.

Significant differences of serum lipid patterns have been demonstrated in normal women of various ages. The serum lipid patterns observed in women with coronary heart disease were not significantly different from those of clinically normal postmenopausal women, save for an increased B-/a-lipoprotein-cholesterol ratio.

Previously hysterectomized women with coronary heart disease were treated with a high dosage schedule of 5 or 10 mg. of Premarin daily for

two to thirty-one months. There was a dramatic serum lipid response as early as one month with a reduction of the cholesterol-phospholipid and B-/a-lipoprotein-cholesterol ratios to levels comparable to those of normal young women within three months.

A low dosage schedule revealed that 1.25 mg. of Premarin daily adequately reduced the cholesterol-phospholipid and B-/a-lipoprotein-cholesterol ratios in women whose ratios were initially below the group mean. In women with ratios initially above the group mean, this dosage failed to achieve a comparable level. A daily increase of dosage to 2.5 mg. resulted in a satisfactory lowering of the cholesterol-phospholipid ratio, although the B-/a-lipoprotein-cholesterol ratio remained somewhat elevated.

Complications of estrogen therapy were noted, but these were not serious. They included breast tenderness, recurrence of migraine, and nocturnal leg muscle cramps. Breast tenderness was temporary, but either migraine or leg cramps, when sufficiently severe, made necessary the cessation or decrease of estrogen dosage. (Robinson, R. W., Cohen, W. D., Higano, N., Estrogen Replacement Therapy in Women with Coronary Atherosclerosis: *Ann. Int. Med.*, 48: 95-100, January 1958)

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Ristocetin in the Treatment of Hospital-Acquired Staphylococcal Pneumonia

During a serious outbreak of staphylococcal infections in a naval hospital, 12 cases of pneumonia due to hemolytic staphylococcus aureus, coagulase positive, were encountered in a nine-month period. Each patient had previously received one or more antibiotic agents and the recovered organism exhibited resistance to those antibiotics.

Six patients were given ristocetin after failure with multiple antimicrobials; in one instance, 18 combinations of 10 different agents. Favorable clinical response, subjectively and objectively, was noted within 24-48 hours in 5 cases; a sixth patient, transferred to the Medical Service in a moribund state, died less than 20 hours after arrival.

The material used was a mixture of ristocetin A and B (4:1), derived from a species of actinomycetes, *Nocardia lurida*. Both components are active against gram-positive bacteria. In its present form, ristocetin is administered only intravenously because it is painful and poorly absorbed intramuscularly and is ineffective orally. No untoward side effects were encountered, although moderate leukopenia has been reported.

No single satisfactory regimen has been found thus far for the treatment of antibiotic-resistant staphylococcal infections. These preliminary clinical studies suggest that ristocetin may be a useful drug in the treatment of such infections. (Schumacher, L. R., Hochman, R. I., Taylor, D. E.,

Calvy, G. L., U. S. Naval Hospital, St. Albans, N. Y., Clinical Studies with Ristocetin in the Treatment of Hospital-Acquired Staphylococcal Pneumonia: Clinical Research, Vol. VI, No. 1, Page 36, January 1958.

N. B: Since submission of foregoing data, 14 additional cases of staphylococcal pneumonia have been seen; 7 of these were treated with ristocetin with good response in 6.

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The Dental Corps in Antarctica

"There are numerous references to the health and well being of the oral structures of men who participated in Antarctic expeditions previous to the current series in connection with the International Geophysical Year. Dr. Russel Frazier, a physician with Admiral Byrd's 1939 expedition, reported that 'most of our problems, medically, were teeth.' Admiral Lord Mountevans repeatedly states that in the several expeditions he accompanied 'many men suffered from bleeding, sore, swollen gums and looseness of the teeth.' Reports have also been written on the reaction of the oral structures to the Antarctic environment by Cherry-Garrard of Scott's last expedition when he said, 'In the pauses of our marching we halted in our harnesses, the ropes of which lay slack in the powdery snow. We stood panting with our backs against the mountainous mass of frozen gear which was our load. There was no wind, at any rate no more than light airs: our breath crackled as it froze. There was no unnecessary conversation: I don't know why our tongues never got frozen, but all my teeth, the nerves of which had been killed, split to pieces.' Roald Amundsen, too, frequently cites the need for dental skills and equipment to combat dental emergencies in his men. It was with wisdom then, that once the logistic problems of supporting a dentist were overcome, billets were created for dentists at the Naval Air Facility, McMurdo Sound, and at the Little America Station. These were the first dentists ever to observe the reaction of the oral structures to the continued cold adaptation as well as the stresses of Antarctic life.

The primary duty of these dentists was the routine and emergency dental care of men in Antarctica. The majority of this care was accomplished at their own bases, but in one instance was carried out through radio instructions given to a hospitalman during the initial landings at the Pole Station when this hospitalman was faced with an emergency resulting from a traumatic injury to the mouth. In other instances, it was accomplished by air lifts to such outlying bases as Byrd Station. In all cases the presence of a dentist in an expedition to Antarctica has proven to be an essential factor, not only for handling the dental treatment of the expedition's

personnel, but also as a morale factor. His importance is shown by the fact that 96% of the men in the McMurdo Sound 1956 Wintering Over Party voluntarily sought dental aid. The need for a dentist is further supported by dispatches from the Commanding Officer, Little America Station (which station did not have a dentist the first year) in which he ordered the dentist from McMurdo to accompany one of the first flights to Little America after the Antarctic winter and to remain there for the duration of his tour in Antarctica in order that the men at his station could get necessary emergency care.

The patient load has been heavy. Dental treatment has been on a voluntary basis with the exception of periodic examinations when the men were appraised of their dental condition. During a year's operation, 2369 examinations and 5126 x-rays were completed. The most common complaint of men seeking treatment was recurring toothache due to inhalation of cold air on teeth containing metallic fillings. In several instances, the removal of the tooth became necessary, but usually the condition could be corrected by removal of the filling in the offending tooth and placing an adequate insulating base beneath the filling. The size of the filling did not appear to be as important as its depth for even very small occlusal fillings caused a reaction to the cold if they were deep and improperly insulated. At no time were we able to support the hypothesis that fillings were lost because of different coefficients of contraction of filling material and tooth structure. Whenever a filling was lost, the loss could be attributed to some less dramatic cause, such as secondary decay or a traumatic occlusion. Teeth with large cavities were not extraordinarily sensitive to the cold, the debris in the cavity evidently acting as an insulator. One other annoying and painful condition was hypersensitive cervical dentine. Frequently, the sensitivity could not be controlled by the topical application of drugs like sodium fluoride or silver nitrate and a cavity had to be cut and filled with an insulating cement filling.

A total of 725 fillings were placed during the year and each filling of metallic nature was prepared to first receive an insulating cement base. In no instance did fillings so placed react to the cold and all remained comfortable for the duration of the winter.

One hundred and fifty-five teeth needed to be extracted and these patients were seen postoperatively 340 times. Initially, the incidence of alveolar osteitis amounted to 23%, but with a more stringent postoperative patient control the incidence was reduced to a little more than 4%. The incidence of submaxillary and sublingual adenopathy following extraction remained high at almost 25%.

Treatment of the periodontium included such items as gingivitis, periodontal scalings as well as simple prophylaxis, equilibration, Vincent's infection, and lacerations. These amounted to 851 treatments. In addition, to these treatments, 488 treatments were rendered for a condition classified

as 'mucous membrane ulcerations.' These were the shallow common cancer sore type that ran a course of 7-10 days regardless of treatment. This condition was the most persistent and annoying of all periodontal lesions and at times appeared to be contagious since five of seven men living in the same quarters presented symptoms within a few days of each other.

A limited, but necessary, service involved the repair of fractured dentures or the fabrication of new ones. It was necessary to make 14 new dentures and repair 16 that were broken. With the exception of one denture, most fractures could be attributed to ridge resorption or trauma and not to any cold weather correlation.

One fractured mandible was treated and healed uneventfully.

The secondary duty of the Deepfreeze dentists was the carrying out of a research outline to study the effects of the cold and stresses of Antarctica on oral health. These studies involved changes in cariogenic rates and studies of soft tissue health. Results of these studies will be forthcoming as reports from the U. S. Naval Medical Research Laboratory, New London, Conn., which acted as the coordinator of all Deepfreeze dental studies." (Captain W. R. Stanmeyer DC USN, Naval Medical Research Laboratory, U. S. Naval Submarine Base, New London, Conn.)

* * * * *

Medical-Dental Television Observation System

On February 1, 1958, NNMC-TV, the Naval Medical Center's Medical-Dental Television Observation System began telecasting. Three years ago, initial steps were taken to start the Television Project. A thorough design study was required to meet the unique needs of a medical-dental teaching center and to provide for future development possibilities in television. In February 1957, the system design was completed, incorporating the advice of television specialists from the Naval Training Device Center, University of Kansas Medical Center, Bureau of Ships, Pennsylvania State University, and Vitro Laboratories, Silver Spring, Md. In July 1957, a contract was let to the Dage Television Division of Thompson Products, Inc., Michigan City, Ind., for the manufacture and installation of the initial unit of the television system.

NNMC-TV is a closed circuit cable system capable of producing and receiving both in black and white and in color. The first unit, completed on January 15, 1958, linked together the Naval School of Hospital Administration, Naval Medical Research Institute, Naval Medical School, Naval Dental School, Naval Hospital, and the Center Command.

The system is essentially one which will lend itself to the full utilization of a mobile self-contained television unit which can be moved to various locations throughout the Center rather than one which forces the programs to be originated from fixed locations or studies. The initial distribution

system will provide outlet points at twenty-two locations which include the principal classrooms and conference rooms.

Final details for a microwave linkage with Walter Reed Army Medical Center and National Institutes of Health have been completed. Work on this interlinking system will begin in March 1958. When completed, about April 1, it will be the world's first continuous TV linkage between a group of medical centers. With this microwave linkage, medical and dental instructional programs can be viewed by each, and by means of interstate facilities, any program can be placed on a nation-wide closed circuit TV network.

The NNMC-TV system is a total intercommunication system. A unique feature is the ability to talk to the image on the screen and receive an answer.

Also included in the NNMC-TV system is a tape recording device for recording any or all parts of the sound portion of programs broadcasted. In the near future, a TV film recording device will be installed and in the distant future, an instant color tape recording system is due to be incorporated. The latter will enable a TV picture to be reshown within 10 seconds after it is received in the central switching area.

NNMC-TV will be operating on an experimental and evaluation basis to determine the value and place of TV in medical and dental fields. A large part of the television activity will be devoted to adapting standard TV equipment to clinical uses and needs.

In addition to instructional programs, the project will explore the use of TV in observing patients, study its uses in x-ray, and explore the use of TV for microscopic work by use of a color TV system.

It is anticipated that routine use of the NNMC-TV system will be in full operation by September of this year. In the interim, experimental instructional programs will be shown throughout the Center to study and solve any technical problems and to enable the personnel assigned to TV Project to familiarize themselves with the equipment and its use. (NNMC, Bethesda, Md.)

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Appointment Opportunities in Medical Service Corps for Hospital Corpsmen

Limited requirements exist for qualified personnel to receive appointments in the Medical Allied Sciences Section of the Medical Service Corps Reserve in the specialties of aviation and general physiology, bacteriology, physics, and industrial hygiene. Requirements for officers qualified in other medically allied specialties will undoubtedly occur at later dates. In order that the fulfillment of these requirements may be insured and that the fullest career opportunities may be extended to potentially qualifiable personnel, attention of all active duty enlisted personnel of the Regular

Navy and Naval Reserve is directed to an opportunity for appointment as Ensign in the Medical Service Crops Reserve.

Pending promulgation of changes to BuPers Instruction 1120.24 of 16 September 1955, individuals holding at least a degree at the baccalaureate level from an accredited college or university, with a major in either the biological or physical sciences area, or in one of the subspecialties of these disciplines, and possessing a better than average scholastic record, may apply to the Chief, Bureau of Medicine and Surgery, via normal command channels for information concerning their opportunities for such appointment.

Letters of inquiry should enclose an official transcript of college credits and a statement of any experience held that is either directly or indirectly related to the biological or physical sciences. To be acceptable for consideration, individuals must be at least 20-1/2, and under 31-1/2, years of age and must have an approving endorsement from their commanding officer. Commanding officers are urged to encourage qualified enlisted personnel to apply for information concerning this program.

(MSC Div, BuMed)

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Highway Patrol Compliments Field
Medical Service School

Captain R. R. Callaway MC USN, Commanding Officer of the Field Medical Service School, Marine Corps Base, Camp Lejeune, N. C., was recently complimented by Colonel J. R. Smith, Commander of the North Carolina State Highway Patrol, on the School's outstanding traffic safety record.

Captain Callaway, in describing the traffic safety program of his Command, states:

"Eighteen months ago, we started a practice of including in our schedule, a one-hour lecture by members of the North Carolina State Highway Patrol for each class going through this school. This is augmented by traffic safety lectures given by our own personnel. In addition, we prepare several life-size dummies dressed in military uniforms and displaying multiple injuries, such as arm or leg amputations, serious face and head wounds, trunk wounds exposing the contents of the thorax and abdomen, etc. These dummies are placed in realistically grotesque positions at all exits to our compound during each long holiday week-end. This has produced a most gratifying result in an exceptionally low traffic offense rate (6 in the year 1957) for traffic violations on our highways and only one hospitalization for injury

resulting from motor vehicle accident. The latter case occurred after the student was detached from this command and was enroute to a new station. These figures are exceedingly small when viewed in light of the total student population at this activity during the same period."

The Surgeon General is intensely interested in reducing total lost hours for accidents among military personnel and suggests that these methods of lectures by highway patrolmen, staff members, and the use of "mock accident victims" may be of value in other campaigns in the reduction of motor vehicle accidents.

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Centers for Special Treatment and Care

BuMed Instruction 6320.5E, dated 31 January 1958, designates the following hospitals as Centers for Special Treatment and Care:

<u>Item</u>	<u>Type of Treatment or Care</u>	<u>Naval Hospital</u>
a.	Acrylic ocular prosthesis	Bethesda, Md. San Diego, Calif.
b.	Amputations	Oakland, Calif. Philadelphia, Pa.
c.	Aural rehabilitation	Philadelphia, Pa.
d.	Coccidioidomycosis	San Diego, Calif.
e.	Histoplasmosis	St. Albans, N. Y.
f.	Neurology	Bethesda, Md. Oakland, Calif. Philadelphia, Pa.
g.	Neuropsychiatry	Oakland, Calif. Philadelphia, Pa.
h.	Neurosurgery	Bethesda, Md. Chelsea, Mass. Oakland, Calif. Portsmouth, Va. San Diego, Calif. St. Albans, N. Y.

<u>Item</u>	<u>Type of Treatment or Care</u>	<u>Naval Hospital</u>
i.	Oncology.....	Bethesda, Md. Oakland, Calif. Portsmouth, Va. San Diego, Calif. St. Albans, N. Y.
j.	Plastic surgery.....	Bethesda, Md. Oakland, Calif. Portsmouth, Va. San Diego, Calif. St. Albans, N. Y.
k.	Radioisotope laboratory facilities.....	Bethesda, Md. Chelsea, Mass. Oakland, Calif. Philadelphia, Pa. Portsmouth, Va. San Diego, Calif. St. Albans, N. Y.
l.	Surgery for the deaf.....	Bethesda, Md.
m.	Thoracic and cardiovascular surgery....	Bethesda, Md. Chelsea, Mass. Oakland, Calif. Portsmouth, Va. San Diego, Calif. St. Albans, N. Y.
n.	Tropical diseases.....	Bethesda, Md.
o.	Tuberculosis	San Diego, Calif. St. Albans, N. Y.

Bilaterally blind patients should be placed in a training and rehabilitation status as soon as possible after the blinding injury or disease. Accordingly, every effort should be made to expedite their direct transfer to the Veterans Administration Hospital, Hines, Ill.

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From the Note Book

1. Volume 166, Number 4, Journal of the American Medical Association, dated 25 January 1958, contains an excellent discussion of many facets of malpractice law from which physicians should derive most valuable information. An opinion, given by the Appellate Court (California), demonstrates a deep appreciation and understanding of the hazards a modern physician faces in employing some of the newer medical and surgical diagnostic techniques in an effort to serve his patients more completely. This discussion is considered excellent "reading" and it is recommended that all medical officers take enough time to read this important medico-legal case, particularly those interested in cardiovascular surgery.
2. Dr. Harry Lyons, Dean of the School of Dentistry, Medical College of Virginia, Richmond, Va., gave the Second Annual William L. Darnall Memorial Lecture at the National Naval Medical Center, Bethesda, Md., under the auspices of the U. S. Naval Dental School on January 16, 1958. Dr. Lyons stressed that the greatest problem facing the dental profession is finding a way to provide dental care for all who need it, at a cost within their ability to pay without changing the traditional patient-dentist relationship. (TIO, BuMed)
3. A postgraduate Course on Pathology of the Oral Regions will be conducted at the Armed Forces Institute of Pathology, 24-28 March 1958. A detailed presentation of both the clinical and histopathologic features of inflammatory and neoplastic diseases of the lips, tongue, floor of the mouth, cheeks, palate, and oropharynx will be given. The course is designed for the general dentist as well as for the general pathologist and will comprise lectures, presentations of case histories, and conferences. (AFIP)
4. March 15, 1958 is the deadline for application to a two-week course in industrial isotope radiography. This course is designed to assist supervisory and technical personnel in obtaining sufficient facility in the use of sealed isotope sources to use them safely and efficiently. The course will be conducted May 5-16 at Oak Ridge, Tenn., by the Oak Ridge Institute of Nuclear Studies. Detailed information is available from the chairman of the ORINS Special Training Division. (ORINS)
5. The records of 32 patients with primary symptomatic small bowel tumors were studied in an attempt to define the clinical pattern produced by these tumors. Most patients had a pattern either of obstruction with attacks of crampy abdominal pain, or of blood loss characterized by intermittent severe bleeding in the benign tumors, and anemia and occult blood in the stools in the malignant tumors. It is apparent that early diagnosis of

small bowel tumors requires a clinician alert to the clinical patterns and a radiologist aware of the roentgen abnormalities which may be produced by these tumors. (Ann. Int. Med., January 1958; J.F. Patterson, M.D., et al.)

6. Most reported cases of the injection of toxic fluid into the oral or facial tissues have involved normal local anesthetic solution contaminated with varying percentages of alcohol. Two cases are reported in which the toxic material was completely unrelated to normal procedures and was introduced by an unexplained accident. Some of the material was available for examination and was found to be a colorless inflammable liquid having the characteristics identical with a well known brand of lighter fuel. (Oral Surg., December 1957; P.J. Stoy, F.D.S. (England))

7. A meningioma is a benign connective tissue neoplasm which may arise from the meninges any place in the central nervous system and, if removed early, may permit return of normal neural function. The records of 143 patients with histologically verified intracranial meningiomas are reviewed with special reference to the ocular signs. (Am. J. Ophth., January 1958; F.W. Newell, M.D., T.C. Beaman, M.D.)

8. Criteria for definite, pure, chronic cor pulmonale have been set down and 51 patients who met these qualifications were studied. By far the greatest incidence is in middle aged white males, although it is seen in all ages, both sexes and in various racial groups. (Dis. Chest, January 1958; G.R. Herrmann, M.D., A.H. Shields, M.D.)

9. Open reduction of central fractures of the acetabulum is technically feasible. The primary objective is to restore the weight-bearing vault. Improvement of symmetry of the pelvis or reduction of the posterior portion of the acetabulum, if achieved as well, is a dividend. (J. Bone & Joint Surg., January 1958; R.A. Knight, M.D., H. Smith M.D.)

10. The advantages of supervoltage radiation over that generated at 250 kv. are its increased percentage depth dose, decreased surface dose and scatter, the increased penetration of bone, and its reduced dose to the soft tissue elements in or near bone. (Am. J. Roentgenol., January 1958; W.J. Meredith)

11. The practical management of chronic ulcerative colitis is discussed in Postgraduate Medicine, January 1958; S.T. Ross.

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SUBMARINE MEDICINE SECTION



Repetitive Dives

Commercial divers often make two dives a day and commonly fail to observe the Navy rule of decompressing for the depth and total time of both dives following the second dive (Art. 833(2) U. S. Navy Diving Manual, NavShips 250-880). The case of a civilian diver who dove to 65 feet and performed heavy work in an air supplied deep sea suit twice in one day is herewith reported. This violates the rule of only one dive in 24 hours unless an emergency exists. The total bottom time for both dives was about 210 minutes. The diver did take decompression stops of 21 minutes at 20 feet and 32 minutes at 10 feet following the second dive which is the schedule for 180 minutes total time at this depth, but inadequate in this circumstance.

It is no wonder this diver felt "excessively fatigued" the following day. Among divers, it is common observation that after they have narrowly missed having decompression sickness based on marginal adequacy of decompression they often feel very fatigued. In this instance, it suggests the narrowness of the safety margin as a result of the inadequate decompression described above. But led on by the folly of having "got away with it," the diver resumed work the third day.

For this third day, there are slightly better records. He dove as before in the same kind of outfit for 105 minutes of bottom time. He returned to the surface without any decompression stops. This by Navy standards was the first mistake of this day. He should have received decompression using the 70 foot 120 minute table which calls for stops of 13 minutes at 20 feet and 16 minutes at 10 feet.

Two hours later he repeated the dive—again an error because he had received inadequate decompression from his first dive of the day and also because it again was two dives in a 24-hour period. This time he received decompression stops of 15 minutes at 20 feet and 15 minutes at 10 feet. Once again this was an inadequate decompression.

Soon after surfacing from this dive he noted paresthesia of the scalp and left hand and also nausea. Within two hours he had severe pain in the left shoulder and elbow. Five hours after surfacing he was asking for treatment at a Navy recompression chamber. At this time he noted fullness in the throat, severe pain in left elbow and shoulder, paralysis of the left arm and hand, decreased left biceps reflex and coryza.

Recompression was slower than usual because of the aggravation of pain as pressure was increased. This is not uncommon. In view of the symptoms he was taken to a pressure equivalent to 165 feet of depth.

After 71 minutes at this depth the pain subsided and after 112 minutes the fullness in the throat disappeared. After 108 minutes the generalized aching subsided. This had introduced confusion into the picture because the patient had been under treatment for arthritis and a cold. Quite properly, this patient was treated on Treatment Table 4. After more than 36 hours under treatment the patient was free of all symptoms upon surfacing. He was advised to remain near the chamber and report any return of symptoms. This standard advice proved itself valid again in this case.

Approximately seven and one-half hours after treatment was completed the patient noted pain in his knees. He returned later and reentered the chamber 11 hours after he left it the first time. He obtained complete relief of the pain in his knees at 100 feet. Had this been the first treatment of this sequence, it would have been permissible to have used Treatment Table 2A. However, because this was a recurrence following treatment it was decided to use Treatment Table 3, starting at the level of relief (100 feet). Nineteen hours later the patient was again at the surface free of symptoms. This time he "stayed cured."

All this could—within reasonable expectations—have been avoided by adherence to safe diving practices, to wit: One dive a day, adequate decompression for every dive, not diving unless completely fit.

It is noted that this chamber was not at this time fitted for use of oxygen during the latter stages of decompression. This is being arranged. When available, the appropriate use of oxygen or helium-oxygen mixtures improves the effectiveness of the removal of the inert gas (nitrogen) causing the trouble and shortens treatment time appreciably.

The extensively revised Navy Diving Manual, soon to be promulgated, will contain tables for computing decompression for repetitive dives.

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

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RESERVE SECTION

Naval Reserve Non-Disability Retirement

The chief authority for Naval Reserve non-disability retirement is Title 10, U.S. Code, Sections 6017 and 1331 - formerly Title III, Public Law 810, 80th Congress, as amended. The following is a resume of the latest information which will be of interest to career Naval Reservists.

What Happens if You Complete 20 Years Before Age 60? You have four possible alternatives which may be followed if you complete 20 years of satisfactory Federal service before you reach age 60:

Continue Active Membership. By doing so you may increase the amount of your retired pay by earning additional points as well as by adding years of service which increases the basic pay upon which your retired pay is based.

Request Transfer to the Inactive Status List. In this status you may not earn additional retirement points. However, this status does count for periodic basic pay increases. Basic pay is increased by additional years of service up to 22 for lieutenants, 26 for lieutenant commanders and commanders, and 30 for captains.

Request Transfer to the Retired Reserve. Except while serving on active duty, no additional points nor years of satisfactory service may be accrued in this status. However, you would remain a member of the Naval Reserve in an "honorary" status and thus be eligible for certain other benefits.

Resign or be Discharged. In this instance you would resume civilian status completely. You would be eligible only for retirement pay (provided you have satisfied the basic requirements) in the nature of a pension upon reaching age 60 and would not be placed upon the retired list. You would not be eligible for any other benefits; similarly, you would not be subject to recall to active duty.

Privileges of Reservists Retired with Pay. Many service-connected privileges are accorded to Reserve personnel retired with pay. When not on active duty, they are entitled to wear the prescribed uniform of the rate or rank held on the retired list when the wearing of the uniform is appropriate. They are allowed use of their military titles in connection with commercial enterprises. They may be accorded—subject to the availability of facilities—the privileges of Navy exchanges, small stores, officers' clubs, enlisted clubs, armed services exchanges, and commissary stores.

Members and former members who have served a minimum of 8 years of active duty—not including AcDuTra—and their dependents are entitled to medical care. Information on medical care for retired Reservists and their dependents is contained in the Manual of the Medical Department, Chapter 21, and BuPers Instruction 1750.5A.

Retired personnel and their dependents may take one round trip per year on a space-available basis on an MSTS vessel subject to payment of the applicable MSTS charges for space-available travel.

Obligations of Retired Reservists. In addition to their many rights and privileges, retired Reservists also have certain obligations. They are subject to the regulations of the Secretary of the Navy; they may be ordered to active duty in time of war or national emergency at the discretion of the Secretary, but may be ordered to active duty in peacetime only with their consent.

They are prohibited from wearing the uniform in connection with non-military, personal, or civilian enterprises, or activities of a business nature. Retired personnel in an inactive duty status in a foreign country may not wear the uniform except when attending by formal invitation ceremonies or social functions at which the wearing of the uniform is required by the terms of the invitation or by the regulations or customs of the country.

All retired personnel are required to report changes of address to the commandants of the naval district in which they reside. They must keep the Commanding Officer, U. S. Navy Finance Center (Special Payments Division) Cleveland 14, Ohio, informed of any changes in mailing address.

Combat Advancement. An officer who has been specifically commended by the head of the executive department (Secretary of the Navy or Secretary of the Army) for performance of duty in actual combat for an act or service performed before 1 January 1947 will, when retired, be placed on the retired list in the next higher grade than that in which serving at the time of retirement. This combat advancement is honorary and carries with it no increase in retired pay. Officers who receive "combat advancement" will be notified in their retirement orders or letters.

Voluntary Retirement of Officers after 20 Years' Active Duty. Title 10, U. S. Code, Section 6323, as amended (formerly Public Law 305, 79th Congress), provides that a Reserve officer who has completed 20 years' active service in the Navy, Marine Corps, Coast Guard, Army, Air Force, or their Reserve components, at least 10 years of which must be active commissioned service may upon application be placed on the retired list. Retirement pay will be two and one-half percent times the number of years creditable for basic pay purposes, times the applicable basic pay of the rank in which serving at time of retirement. Applications should be submitted three months before date of retirement desired.

Retirement after 20 or 30 Years' Active Duty. Title 10, U.S. Code, Section 6327, (formerly Section 413, Public Law 476, 82nd Congress), provides that members who have performed not less than 30 years' active Federal service or who have had not less than 20 years' active Federal service—the last 10 of which shall have been performed during the 11 years preceding their transfer to the Retired Reserve—may be placed in the Retired Reserve upon their request.

Payment under this section of the law, as determined by SecNav, will be 50% of the active duty base pay of the rank or rate in which retired or the highest rank in which service was satisfactory.

Any member of the Naval Reserve who meets the requirements is eligible except that no person who was not a member of the Naval Reserve or Marine Corps Reserve on 1 January 1953 will be eligible for the provisions of this section. This portion of the law will terminate on 1 January 1973. Applications should be submitted 3 months before the desired date of retirement.

Retirement of Warrant Officers after 20 Years' Active Service. Under the provisions of Title 10, U.S. Code, Section 1293, Reserve warrant officers who have performed at least 20 years' active service may be placed on the Naval Reserve retired list upon their request.

Retirement pay will be at the rate of two and one-half percent times the number of years creditable in computation of basic pay, times the applicable basic pay of the rank in which retired, unless entitled to higher retired pay under other provisions of law. Retired pay may not exceed 75% of basic pay.

Any warrant officer in the Naval Reserve on active or inactive duty who meets the requirements is eligible. Applications should be submitted three months before the desired date of retirement.

Additional information on Naval Reserve Non-Disability Retirement With Pay may be found in BuPers Instruction 1820.1B.

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Hospital Food Service Management

The Medical Department correspondence course "Hospital Food Service Management," NavPers 10767, is available to Regular and Reserve officers and enlisted personnel of the Medical Department of the Armed Forces, as well as officers of the U.S. Public Health Service and allied foreign medical department officers. This course consists of six (6) objective type assignments and is evaluated at eighteen (18) Naval Reserve promotion and/or nondisability retirement points.

The director of a food service division in a naval hospital supervises a wide variety of technical and administrative activities. These include scientific menu planning, food production, procurement, storage, and food cost control. The scope of this course is to familiarize personnel with the basic principles of all food service activities. Special emphasis has been placed on such problems as planning, staffing, staff training, and food cost accounting, for these are acknowledged areas of weakness in the operation of many hospital dietary departments.

Personnel who successfully complete this course will acquire an understanding of what hospital administrators look for in their dietary department. The desire and ability to serve and satisfy patients are the qualities that administrators seek. They expect the members of the hospital dietary department to have an awareness of current professional and managerial methods. This correspondence course strives to provide new achievement goals in the direction of more efficient and effective techniques of management, production, service, and supervision.

Applications for the course should be submitted via applicant's command to the Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md. (Attn. Correspondence Training Division).

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DENTAL



SECTION

Work Authorizations for Dental Prosthetic
Laboratory Procedures

The American Dental Association is presently sponsoring a policy of requiring dentists to provide dental laboratory technicians with written work authorizations for work to be performed in the dental laboratory. The Dental Division requested information regarding the application of this policy to Navy dental activities and received the following reply from the Secretary, Council on Dental Trade and Laboratory Relations of the American Dental Association.

"In your letter of December 26, you request:

- (1) Information on whether written work authorizations are required when work is delegated to a dental laboratory technician who is employed in the private dental office.

(2) Comments on the adequacy of the Prosthetic Case Record (Laboratory Card) which is currently being used by Navy Dental officers when work is delegated to Navy Dental laboratories.

The policy of the Association urging the enactment of work authorization requirements in the state dental practice acts is directed toward transactions between a dentist and a commercial dental laboratory. From a policy viewpoint, therefore, there is no specific requirement on the need for a written authorization when work is delegated by a dentist to a dental laboratory technician employed by the dentist in the dental office.

I displayed the Prosthetic Laboratory Record (NavMed-952) to several members of the Council and asked for their comments. The consensus was that the present Record is adequate."

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Veterans' Dental Treatment

BuMed Instruction 6620.2 of 20 March 1953 sets forth a policy that Dental officers of the Navy shall not advise personnel being separated from the Navy or Marine Corps regarding eligibility for dental treatment from the Veterans Administration. The Bureau of Medicine and Surgery, however, continues to receive allegations from discharged personnel which indicate that the aforementioned policy is not being followed in all instances.

Very few veterans who are currently being discharged are eligible for dental treatment at Veterans Administration expense. Specifically, a veteran who entered the service after 31 January 1955 is a peacetime veteran and may be considered eligible for treatment of service connected dental defects at Veterans Administration expense only if discharged because of a service incurred disease or injury and is in receipt of disability compensation from the Veterans Administration.

Separatees given erroneous information regarding eligibility for dental treatment are disappointed and sometimes irate when advised by the VA that they are not eligible for this care. Because many veterans have sent letters to the Congress, the Secretary of Defense, Secretary of the Navy, American Legion, et cetera, the significance and importance of BuMed Instruction 6620.2 cannot be overemphasized.

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Navy Dental Corps Receives Certificate of Recognition

NDC received a certificate from the St. Louis Dental Society for its contribution to the scientific exhibit at the Mid-Continent Dental Congress in St. Louis. Included was the manikin used in the DC Casualty Treatment Training Program.

AVIATION MEDICINE DIVISION



Aviation Medicine's Report to the Field

It is felt that many flight surgeons of the Navy rarely realize the functions of the Aviation Medicine Operations and Aviation Medicine Technical Divisions of the Bureau of Medicine and Surgery nor the scope of details involved. With this in mind, it is decided that a reprint of the Divisions' semi-annual reports to the Surgeon General would give, to some extent, a condensed and "birdseye" view of the divisions in the Bureau that the flight surgeon is most directly concerned with.

Following is, with very little editing, a brief and general summation of these activities for the last six months of the calendar year 1957.

It is to be noted that during the past six months, Code 5 was reorganized and Code 53 was replaced by a more efficient two-division organizational structure. New Code 51 is now designated as the Aviation Medicine Operations Division with Branches of 511, Aviation Physical Qualifications; 512, Aviation Medicine Training; 513, Aviation Operational Psychology; and 514, Aviation Medicine Plans and Personnel. New Code 52 is designated as the Aviation Medicine Technical Division and consists of Branches of 521, Aviation Medical Systems Requirements; 522, Aviation Medical Equipment; 523, Aviation Medicine Safety and Flight Training; and 524, Aviation Medicine Marine Corps Requirements.

The Aviation Medicine Operations Division (Code 51) reports as follows:

On 1 July 1957 there were 333 flight surgeons in aviation medicine billets. As of 31 December 1957 there were 327 flight surgeons on duty as such. This represents a decrease of six during the past six months. During this same period, due to the over all reduction of Navy medical officer personnel, four aviation medicine billets were deleted and three new aviation medicine billets established, making, as of 31 December 1957, 353 such billets in the Medical Corps structure. There are, due to the shortage of flight surgeons, 25 selected aviation medicine billets that are being filled by general service medical officers. This highly undesirable practice must, under the present CNO student quota system, necessarily continue during the foreseeable future in order to provide medical care coverage to aviation personnel assigned to these units.

In order to replace those flight surgeons leaving the service following the completion of obligated service and those being released from aviation

medicine duties to take up residency training in other medical specialties, 50 U. S. Navy medical officers were graduated as flight surgeons from the Naval School of Aviation Medicine, Naval Aviation Medical Center, Pensacola, Fla., during the past six months. In addition to these, the School graduated three officers who are members of the U. S. Army Medical Corps and three who are medical officers in the service of foreign nations. It is planned that 58 medical officers will be graduated as naval flight surgeons from the School and that the U. S. Army will continue to fill its quota of eight medical officers a year by placing two in each of the four convening classes a year. Six foreign medical officers have been enrolled for instruction in aviation medicine.

This Division will continue to recruit medical officers as candidates for training in aviation medicine and to recommend the routine transfer of aviation medical officers, coordinating these recommendations with the Military Personnel Division of this Bureau.

Medical Service Corps officers working as aviation applied physiologists increased from 22 to 23, and at the present time one more is under instruction at the Naval School of Aviation Medicine and will be assigned to duty with an Aviation Physiology Training Unit in the near future. Two of the present aviation applied physiologists will be released from active duty within the next two months. One Medical Service Corps Aviation physiologist is in his second postgraduate scholastic year at Ohio State University, and it is anticipated he will be awarded a Ph.D. degree in aviation physiology at the end of the current school year.

The authorization for hazardous duty incentive pay for low pressure chamber inside instructor-observers and those acting as human subjects for acceleration/deceleration studies is at present 22 Medical Service Corps aviation applied physiologists and 97 enlisted personnel. This is an increase of one officer and five enlisted men since July 1957.

An executive order establishing hazardous duty incentive pay for test subjects of experimental thermal and environmental stress tests was signed by the President and promulgated to, and implemented by, the several services. Of the 100 allowable billets within the several services, the Navy was allotted eight officer and twenty enlisted billets. Two officer and four enlisted billets have been established at the Naval Medical Research Institute, Bethesda, Md. The remaining billets will be established in the immediate future at three other appropriate naval aviation medical research or development activities.

During the past six months, 28 enlisted training devicemen were given a six weeks' course in the operation and maintenance of aviation physiology training devices and placed in billets at aviation physiology training units for duty. One flight surgeon continued in the aviation training course leading to the designation of naval aviator, and two flight surgeons continued in the naval aviation medicine residency program leading to eligibility for

certification in Aviation Medicine by the American Board of Preventive Medicine. Two naval aviator flight surgeons were lost to the service by resignation. Twelve flight surgeons changed their status from U.S. Naval Reserve to the Regular Establishment during the preceding six months.

The ordering of aviation physiology training devices continued to keep pace with the new and ever demanding requirements during the past six months. With delivery during Fiscal Year 1959 being expected, the following devices have been contracted for:

- a. Four low pressure, explosive decompression chambers, one of which is capable of simulating altitudes up to 250,000 feet and the other three up to 90,000 feet.
- b. Five static display Martin-Baker ground level ejection seats for aviation personnel training.
- c. Five new ejection seat training Devices 6-EQ-2c, two of which contain the new Martin-Baker ground level ejection seat features and the remaining three having the new North American Aircraft Company ejection seat.

A new Aviation Physiology Training Unit was established at the Marine Corps Air Station, El Toro (Santa Ana), Calif., with a low pressure chamber, night vision trainer, ejection seat training device and other required equipment and training aids. Aviation Physiology Training Unit personnel consisting of one aviation applied physiologist, four qualified enlisted inside instructor/observers, and one flight equipment technician were authorized and ordered to the Unit for the instruction of flight personnel in aviation physiology phenomena and the use of airborne personal equipment.

The Division actively participated in the planning and implementing of the 64th Annual Meeting of the Association of Military Surgeons of the United States held in Washington, D.C., in November 1957.

Lectures on aviation physiology equipment and aviation safety were given by representatives of this Division at the Naval School of Aviation Medicine, Pensacola, Fla., and the Junior and Senior Marine Corps Schools, Quantico, Va.

During the past six months, the Division produced three editions of the Aviation Medicine Section of the Navy Medical News Letter, containing professional and informative material to all medical officers interested in aviation medicine.

Frequent clearance by this Division is required for officers and civilians of the United States military services and those of friendly foreign nations for visits to the U.S. Navy installations doing research and development in the fields of aviation medicine and airborne personal equipment. There is a large volume of requests for aviation medicine publications,

the majority from foreign governmental agencies, that this Division honors by forwarding of the reports.

Air transportation of a considerable number of officers and civilians in the services of the Department of Defense is effected by arrangements made by this Division through the Chief of Naval Operations for special air-lifts and available space previously scheduled aircraft flights. Reports of air evacuation of patients by naval aircraft not assigned to MATS are received and processed.

Division representatives presented professional papers before the International College of Surgeons in September 1957 and the Symposium of Military Medicine in October 1957.

On 31 December 1957, there were 28 Medical Service Corps Experimental Psychologists on active duty in aviation billets. Of these, ten were permanent officers of the Regular Navy, three officers having been augmented during the year. Of these Regular Navy representatives, three possess Ph.D. degrees, as do seven of the Reserve officers. However, since the pressure of the draft has been somewhat abated, civilian psychologists with Ph.D. degrees seem no longer interested in applying for naval commission. Even the civil service opportunities for such trained personnel carry greater financial inducements than can be made available to the men entering the Medical Service Corps, and outside opportunities in industry make it virtually impossible for the Navy to attract well trained experimental psychologists.

In order to strengthen the training of those psychologists in the Navy, the Aviation Operational Psychology Branch has attempted to plan for increased training in service. One USN officer is working toward the completion of his Ph.D. degree at the present time. Two Reserve officers, although they are in full-time billets, are being encouraged to continue their graduate studies in their spare moments, and with the cooperation of their superior officers these two men should complete their Ph.D. degrees in the near future. Similar arrangements are being made where possible to encourage officers without Ph.D. degrees to build up their academic credits as circumstances permit so that eventually they may be sent to full-time training as necessary to complete the requirements of the doctoral degree. It is hoped that by such means, it will be possible to strengthen the Aviation Experimental Psychology Program in spite of the relatively limited academic training among those presently applying for the program.

During the six months ending 31 December 1957, the Aviation Operational Psychology Branch scored and processed approximately sixteen thousand separate tests for nearly five thousand (4633) applicants for Naval Flight Training. (These figures are somewhat lower than for the first six months of 1957.)

Slightly over half of these tests (2370) were submitted through flight surgeons in the field rather than regular recruiting activities, and test

results were reported back by mail in these cases. The Branch found that roughly one out of every fifty tests previously scored at recruiting centers had been mis-scored, and errors in calculating the results were also found in about one case out of each fifty. Letters correcting these errors were sent as appropriate when the correction was important to the acceptance or rejection of the applicant.

IBM card files are maintained showing test results for each applicant, and duplicates are prepared and forwarded to Pensacola routinely as each new class of flight students reports to Pre-Flight School. These cards also form the basis for checking against test "repeaters," and for conducting research on the "how-goes-it" of the FAR Battery and the development of improvements to the tests themselves.

The primary functions of the Medical Service Corps Experimental Psychologists in aviation continue in the direction of research; but the past year has seen a definite turning of these research interests toward more and more operational application. This branch has complied with a request from the Naval Experimental Diving Unit for assistance with their research program by assigning to that Unit on a one-year basis one experimental psychologist. The psychologist on the staff of the Chief of Naval Air Training has functioned as head of a committee which has revised the entire Naval Air Ground Training syllabus. The psychologists in the Aviation Psychology Laboratory at Pensacola have devoted a major share of their effort toward the finding of answers to administrative problems presented them by the Chief of Naval Air Training and the Chief of Naval Air Basic Training. Meanwhile, the experimental psychologists at the Naval Medical Research Institute have been called upon to assist with certain engineering psychology problems in connection with missiles-weapons systems at Point Mugu, Calif., and have devoted a major share of their effort toward their solution. A plan of coordination is also being developed between these psychologists and those in the Aviation Psychology Laboratory at Pensacola for a team attack upon those missile problems. Similar demand for psychology assistance in operational problems has resulted in the transfer of billets from the School of Aviation Medicine, Pensacola, to the Patuxent River Naval Air Test Center and to the Air Crew Equipment Laboratory of the Naval Air Materiel Center, Philadelphia. It is planned that these men will continue to work to do research, but with emphasis upon the problems of psychological engineering related to the immediate operational problems of their respective commands.

The Aviation Operational Psychology Branch continues to monitor the Naval Aviation Selection Tests administered to all applicants for flight training. However, the loss of a key civilian billet concerned with research toward the improvement and maintenance of this test program has severely limited the ability of the Branch to continue the research aspects of the testing program. Ways and means are currently under study as to the

possibility of transferring these functions to other activities, since it is apparent that this type of research must be continued.

The Aviation Operational Psychology Branch continues its participation in the U. S. Civil Service committee panels on experimental and physiological psychology and on human engineering. There is also continuing participation on the Committee on Hearing and Bio-Acoustics and on the Naval Advisory Committee on Human Engineering.

Papers delivered at various meetings and various publications by personnel from the Psychology Laboratory at the School of Aviation Medicine and representatives from the Aviation Operational Psychology Branch have brought about continuing interest in the techniques that have been developed for the improvement of selection and training of naval aviators. In consequence, this Branch has been queried on many occasions by members of the other Navy bureaus concerning the selection tests and their possible further utilization within the Navy Department. The Bureau of Medicine and Surgery has also been represented at meetings with the Bureau of Naval Personnel and representatives of the Chief of Naval Operations in connection with problems of procurement of naval aviation trainees and the extended use of the Naval Aviation Selection Tests in improving the quality of in-put into the Naval Air Training Program.

The work load of the Aviation Physical Qualifications Branch for the current reporting period has shown a slight decrease over the last reporting period. It is anticipated, however, due to the new policy of completing annual physical examinations within 30 days of the officer's birth date, that an increase in the work load will be reflected in the early part of the next reporting period.

During this reporting period, the Aviation Physical Qualifications Branch handled 26,408 pieces of correspondence, among which 15,084 Standard Forms 88 were reviewed and endorsed, 878 Standard Forms 88 were typed, 4152 flight training applicants' physical examination and medical history records were reviewed and processed, and more than 5800 letters written and forwarded to various activities in the field.

There is a current backlog of typing of 357 cases as of the end of this period due to the resignation of one clerk-typist. It is anticipated that this typing backlog will be eliminated in the very near future.

This Branch has been physically relocated from Rooms 1333-1338, Tempo "D" Building, to Rooms 3104, 3105, 3106, Building 3, Potomac Annex. This physical relocation is a great administrative improvement in helping to expedite final Bureau action on many cases, although medical records are not as readily available as when this Branch was physically located in the same building with the Physical Qualifications and Medical Records Division.

An intensive training program is constantly in effect in this Branch to keep personnel current on all related subjects and problems.

The Aviation Medicine Technical Division (Code 52) reports as follows: On 18 October 1957, the Aviation Medicine Technical Division was established replacing the liaison billets Codes 531, 5311, and 5312. The same personnel now staff this new Division. The reason for this change was to better reflect the true nature of the work load of these personnel. These officers, in fact, comprise the aeromedical technical group which furnishes physiological, psychological, and human factors information to the Navy technical bureaus and offices concerned with aviation development programs.

As such, these officers continue in furthering programs established prior to this reporting period and in establishing new research required for future aircraft.

The aviation requirements for aircrew systems have been under active review and three new equipment and design characteristic requirements have been submitted to BuAer for review. Policy letters for issuance by the Chief of Naval Operations were prepared on subjects which included in-flight feeding equipment, aviators' personal and protective equipment, ejection seat and related escape equipment, flight deck communications, and high altitude pressure suits.

A representative of this Division attended the Second European Congress of Aviation Medicine, Stockholm, Sweden, and among other things, participated in discussions on human centrifuge bio-assay techniques.

Attendance at the Army-Navy Instrumentation Program on the West Coast and visits to places in connection with aeromedical research, pilot safety and personal equipment and related systems problems, also was accomplished by a representative of this Division.

A representative of this Division participated in the 7th General Assembly of the Advisory Group for Aeronautical Research and Development of NATO and as the U. S. Navy member on the Aeromedical Panel, was present on the field trip with the foreign panel members to the U. S. Naval Air Station, Pensacola, Fla.; Wright Patterson Air Force Base, Ohio; Naval Air Crew Equipment Laboratory, Philadelphia, Pa., and the Naval Aviation Medical Acceleration Laboratory, Johnsville, Pa., preceding the General Assembly in Washington, D. C.

The noise conservation program has been continued with the development and evaluation of new types of ear muffs for ground personnel and aviators' helmets. A study has been initiated through the Aeromedical Branch of the Naval Air Test Center, Naval Air Station, Patuxent River, Md., to obtain the ground noise profiles on all current Navy aircraft. An additional project was established at the School of Aviation Medicine, Pensacola, Fla., to render necessary assistance to the Naval Air Test Center to insure accurate and reliable sound readings. In addition, the acoustic group of the School of Aviation Medicine has been established as the Bureau of Aeronautics consultants for task orders on noise surveys

in the aeronautical organization when requests by the Bureau of Aeronautics are made.

Representatives of this Division are on the Joint U. S. Navy-Air Force Pressure Suit Committee formed upon the request of the Department of Defense to insure adequate interchange of technical information and to avoid unnecessary duplication of research or development. This Joint Committee met at the Wright Air Development Center, Wright Patterson Air Force Base, Ohio, at which time the Air Force presented their recent developments in the full pressure suit field. Increased emphasis has been placed on the development of a full pressure suit in the Navy which will feature high mobility and comfort in the nonpressurized state vs. these factors in the pressurized state. The policy is based on a "get-me-down" suit for short-time emergency instead of the "mission completed" suit. To this end, three suits incorporating the light-weight features are under evaluation at the Air Crew Equipment Laboratory; at VX-3, Naval Air Station, Atlantic City; and at the Naval Air Test Center, Patuxent River. Each of these suits is made by a different contractor and appears to be more promising for pilot acceptance. Inasmuch as there has been increased utilization of partial pressure suits in the Navy, the full pressure suit indoctrination and training units have also been trained and are now administering U. S. Navy indoctrination in the use of partial pressure suits (formerly, this was accomplished for the Navy by the Air Force at the Wright Air Development Center).

During this period, there was recognition of the need for prescription sunglasses for naval aviators. A prototype study was made in which 120 naval aviators requiring the use of prescription sunglasses while flying were issued sunglasses incorporating their prescriptions. Indications are that these glasses fill a definite need and are most acceptable. Plans are under way for the issue of these glasses to all aviators requiring their use during FY 1959.

Representatives of this Division attended the Aircrew Personal Equipment Team Conference with fleet representatives at the Naval Air Station, Norfolk, Va., to discuss deficiencies in aviator's equipment and to demonstrate newly developed equipment which would replace existing equipment.

On 28 August 1957, the first ground level live ejection in the United States was made by an employee of the Martin-Baker Company of England. Only one other has been made in the world and that by the same company in England about two years ago. The subject was shot into the air 101 feet and landed safely with his parachute and sustained only minor bruises. This demonstration was a part of the test program being conducted by Grumman Aircraft Company for the U. S. Navy in connection with the installation of this ground level ejection seat in the Navy's F9F-8T. This high-speed jet training plane has two cockpits and will, therefore, require two ejection seats. The last 50 aircraft of this model will be so equipped.

The significance of this achievement is borne out by the fact that, in Fiscal Year 1956, 265 naval aviators met their deaths in aircraft accidents. Sixty-two (62) percent of these accidents occurred during the landing and take-off phases of flight. Of those who ejected below 1000 feet, ninety-four percent were killed. This ground level capability is made possible by a high velocity catapult utilizing three separate ordnance charges instead of the one used in present naval aircraft. The first of these three charges is similar to our present charge. The catapult tube on its way out passes consecutively two more face charges which are ignited by the burning gases from the first charge. The "G" imparted to the man is somewhat higher than in present Navy seats.

The other important innovation of this system is the rapid deployment of the main parachute. This cycle of events is activated by the firing of a drogue gun in about one-half second after the seat is ejected. This drogue gun pulls out a small pilot chute and a five-foot parachute which stabilizes the seat and finally pulls out the main parachute.

To prevent high-speed damage to the main parachute, a "G" sensing device stops further action of the system should the airspeed be great enough to damage the main parachute. In addition, there is an aneroid device which will also delay this deployment above a specified altitude, usually 10,000 feet. When the speed is no longer critical, such as would be in the case of take-off and landing, the five-foot parachute disengages the seat belt and activates the main parachute. Investigation is currently under way at each of the major naval aircraft suppliers to determine the feasibility of retrofitting with this new seat system in first-line Navy jet aircraft.

The aircraft major accident damage rate, which has been declining steadily over the past few years, leveled off at 3.1 major accidents per 10,000 flying hours in calendar year 1957. This compares with calendar 1956 rate of 3.08. One thousand two hundred and five (1205) major accidents in 1957 resulted in 365 aviation fatalities. The fatal accident rate remained essentially unchanged at .57 fatal accidents per 10,000 flying hours.

The seriousness of the accidents was emphasized by the convening of an AdHoc Committee for Readiness and Safety at the Naval Aviation Safety Center, 28 October through 1 November 1957. Recommendations by this Committee to reduce the high accident rates of six new high performance aircraft included a more prominent role for the flight surgeon. As emphasized in previous reports, future gains in aircraft accident prevention, as naval aircraft become more and more demanding of superlative human performance, can best be sought in the category of so-called pilot-error accidents, since this one causative factor is responsible for approximately two of every three major aircraft accidents.

The concern for pilot and human factors in costly high performance aircraft was further reflected during the year by a symposium on "The Unexplained Aircraft Accident" conducted by the Advisory Group for

Aeronautical Research and Development Aeromedical Panel in Paris, 2-5 April 1957. This Division was represented at this meeting.

A comprehensive study of the role of the flight surgeon in aviation medical safety activities, conducted by Psychological Research Associates, was published by the Naval Training Device Center, Fort Washington, N. Y. on 31 August 1957. In addition to recommendations for improved training aids and practices, this study resulted in a Handbook for Flight Surgeons containing the substantive content of course materials in aviation accident prevention and investigation.

OpNav Instruction 3740.7 of 25 June 1957 was published as a guide for the development and maintenance of individual physical and mental fitness by flying personnel.

BuMed Instruction 6510.6 of 3 September 1957 summarizes the Navy's role in support of a tri-service aviation pathology program.

Following a civilian airplane accident in the Pacific Ocean, the Navy had an opportunity to participate in one of the largest sea-air search and rescue operations in history. A Navy flight surgeon on temporary additional duty at the Armed Forces Institute of Pathology was one of the experts invited by the Civil Aeronautics Board to assist in the pathological examination of remains which were recovered. The Board of Supervisors for Los Angeles County, on 19 November 1957, passed a special resolution commending various naval facilities for their part in this operation.

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U. S. Navy Weight Standards Slide Rule

Each aviation medicine physical examination facility has been made addressee for two U. S. Navy Weight Standards Slide Rules. These handy gadgets provide a simple and rapid method of determining the minimum, standard, and maximum weight limitations for an examinee, as promulgated by Article 15-8(1) of the Manual of the Medical Department.

Because of limited procurement of the slide rule, it is advised that each rule be given gentle and loving care. There are, however, a few additional rules available to those larger and more active facilities that find two rules inadequate for work-load demands. Medical activities requiring one or two additional rules may request them by letter direct to the Chief, Bureau of Medicine and Surgery (Code 511), Navy Department, Washington 25, D. C.

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The printing of this publication was approved by the Director of the Bureau of the Budget, 16 May 1955.

Annual Meeting of the Aero Medical Association

The 29th Annual Meeting of the Aero Medical Association will be held 23-26 March 1958 at the Hotel Statler, Washington, D. C. Due to recent advancements in aeronautics, this meeting will prove most interesting. It is urged that all those associated in the field of aviation medicine and its allied sciences consider attending this meeting.

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